Appl. No. 10/611,315
Amdt. Dated December 4, 2006
Reply to Office Action of August 2, 2006

Attorney Docket No. 83394.0008
Customer No.: 26021

REMARKS

This application has been carefully reviewed in light of the Office Action dated August 2, 2006. Claims 1-8 remain in this application. Claim 1 is the independent Claims. Claims 1, 4, and 8 have been amended. It is believed that no new matter is involved in the amendments or arguments presented herein. Reconsideration and entrance of the amendment in the application are respectfully requested.

Non-Art Based Rejections

Claims 1-8 were rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness. In response, the claims have been amended to address the issue cited in Office Action. Reconsideration and withdrawal of the above § 112 rejections are respectfully requested.

Art-Based Rejections

Claims 1, 3-4, and 7-8 was rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 5,870,576 (Faraboschi). Claims 2, 5, and 6 were rejected under 35 U.S.C. § 103(a) over Faraboschi in view of U.S. Patent No. 6,691,305 (Henkel). Applicant respectfully traverses the rejections and submits that the claims herein are patentable in light of the arguments below.

The Faraboschi Reference

Faraboschi is directed to methods and apparatus for storing wide instruction words in compressed form and for expanding the compressed instruction words for execution. (See Faraboschi: Col. 1, lines 14-16). According to Faraboschi, compressed instruction words of a program are stored in a code head segment of the

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memory, and code pointers are stored in a code pointer segment of the memory. Each of the code pointers contains a pointer to one of the compressed instruction words. Part of the program is stored in a instruction cache as expanded instruction word. (*Faraboschi Abstract*).

The Henkel Reference

Henkel is directed to a method and apparatus for compressing and decompressing object code instructions that are included in a software program that executes on a computer system. (*See Henkel: Col. 1, lines 16-20*). According to Henkel, the method includes extracting compressible instruction and data portions from executable code, creating a mathematical model of the extracted code portions, class the individual instructions in the extracted potions based upon their operation codes and compressing the instructions. (*Henkel Abstract*).

The Claims are Patentable Over the Cited References

The present application is generally directed to micro controller that processes compressed codes stored in a memory.

As defined by amended independent Claim 1, a micro controller includes a CPU, performing processing in accordance with a program. The micro controller further includes a memory storing: compressed codes resulting from the conversion of original codes into variable length codes; an address conversion information specifying the head address of each group of grouped compressed codes of variable lengths; and a compressed code type information specifying, according to each group, the code length of each compressed code of variable lengths contained in each group. A compressed code processing part specifies, from a code address output by the CPU, an address conversion information and compressed code type information

to be referred, using the specified address conversion information and the compressed code type information to determine the corresponding compressed code address, and reads the corresponding compressed code.

The applied references do not disclose or suggest the features of the present invention as recited by the claims. In particular, applied references do not disclose or suggest, "a compressed code type information, specifying, according to each group, the code length of each compressed code of variable lengths contained in each group," as required by amended independent Claim 1.

The Office Action identifies the mask field (*Faraboschi: reference element 150,* "*101001110*") as the compressed code type information specifying the code length of each compressed code of variable lengths contained in each group information, as recited in amended independent Claim 1. Applicant respectfully submits that the referenced mask field could only specify the location of fixed-length codes and would fail when applied for codes of variable lengths, as required by amended independent Claim 1. The addresses of those codes also demonstrate that each of the purported compressed codes is of the same length. (*Faraboschi: Fig. 2, W00 address is 14000300, W02 address is 14000304, W05 address is 14000308...*).

The Office Action appears to identify the groups of compressed codes having variable lengths as the feature recited in amended independent Claim 1. However, that claim recites the feature of variable length compressed codes, and not variable length groups therein. Accordingly, Faraboschi does not disclose or suggest the features recited in amended independent Claim 1.

Moreover, Faraboschi sends commands to CPU in Very Long Instruction Word (VLIW) format. For example, the instruction word 112 in FIG. 2 includes 5 operations: W00, W02, W05, W06, and W07. When these commands in VLIW form

are stored in memory, the mask 150, the code heap segment 140 and the pointer 152 are used in the process. The Office Action regards the mask 150, the code heap segment 140, and the pointer 152 respectively as the same as the compressed code, the address conversion information, and the compressed code type information recited in the claims of present invention.

Applicant respectfully disagrees with that position. If code heap segment 140 is equal to the compressed code, then Faraboschi needs a piece of the address conversion information for every command. In contrast, one aspect of present invention has a piece of the address conversion information is provided for every blocks in this application. Thus the address conversion information is reduced.

Henkel is not seen to remedy the above deficiencies of Faraboschi. Henekl disclose information on code length which is included in each compressed core (Henkel FIG. 11A and FIG. 11D). Accordingly, the code length is recognized only after decoding.

In contrast, in one aspect of present invention, information on code length is not included in the compressed code, and not read with the address conversion information. The one aspect of the present invention calculates an address for corresponding compressed code.

Since the applied references, alone or in combination, do not disclose or suggest the features of the present invention as recited by amended independent Claim 1, those references cannot be said to anticipate nor render obvious the invention which is the subject matter of that claim.

Accordingly, independent Claim 1, as amended, is believed to be in condition for allowance and such allowance is respectfully requested.

The remaining claims depend either directly or indirectly from independent Claim 1 and recite additional features of the invention which are neither disclosed

nor fairly suggested by the applied references, and are also believed to be in condition for allowance. As such, reconsideration and allowance of those claims are respectfully requested.
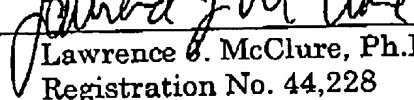
Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (310) 785-4721 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

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By: _Lawrence J. McClure_

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